Operating Instructions for ZHRV2-S LCD Voltage Relay

☐ Function Features

- Built-in high-performance micro controller with high reliability and strong resistance to interference.
- Voltage value and fault message displayed through LCD.
- Protection against over-voltage, under-voltage, phase failure, unbalance and phase sequence is available.
- Protection parameters are set through keys, and the protection function can be turned on and off freely.
- True RMS value measurement, voltage measurement accuracy ≤1%.
- Measurement frequency 45Hz~65Hz.
- Three-phase voltage value query through keys.
- Testing and manual reset can be conducted through keys.
- Three-phase four-wire system features N-phase failure protection.

☐ Model and Connotation

ZHRV2— S /□

- Rated supply voltage code: M240, M415
  M240:220-230-240VAC (three-phase four-wire system)
  M415:380-400-415VAC (three-phase three-wire system)
- LCD Display
- ZHRV2 Series Voltage Relay

☐ Main Technical Parameters

Rated supply voltage	M415:AC200V~500V
	M240:AC125V~300V
Rated supply frequency	50/60Hz
Fixed lag value	M415:6V
	M240:5V
Phase failure, phase sequence	≤0.2s
Voltage measurement error	≤1% (the entire setting range)
Time delay error	±10%+0.1s
Measurement accuracy	1%, true RMS value measurement
Rated insulation voltage	415V
Type and maximum rating of short-circuit protector	RT36-00 5A
Protection grade	IP20
Pollution class	3
Electrical life	10^5
Mechanical life	10^6
Height above sea level	≤2000m
Operating temperature	-5℃~40℃
Permissible relative humidity	≤50% (40℃) (without condensation)
Storage temperature	-25℃~55℃, up to 70℃ within a short period of time (24h)
Contact parameters	Ith:5A;AC-15:AC240V/1.5A AC415V/0.95A

Technical parameters	Setting range	Step	Factory default	Remarks
Over-voltage operation value	0FF-381V~500V	1V	437V	M415
	0FF-221V~300V	1V	253V	M240
Over-voltage delay time	0.1~20s	0.1s	2s	
Under-voltage operation value	260V~379V-OFF	1V	323V	M415
	150V~219V-OFF	1V	187V	M240
Under-voltage delay time	0.1~20s	0.1s	2s	
Unbalance ratio	OFF-5%~20%	1%	8%	
Unbalance delay time	0.1~20s	0.1s	2s	
Phase sequence protection	ON-OFF		ON	
Start-reset delay time	0.3~30s	0.1s	0.3s	
Automatic	ON-OFF		ON	

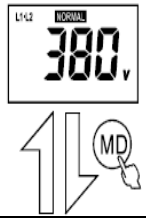
Note: "ON" means activating protection function, and "OFF" means inactivating protection function.

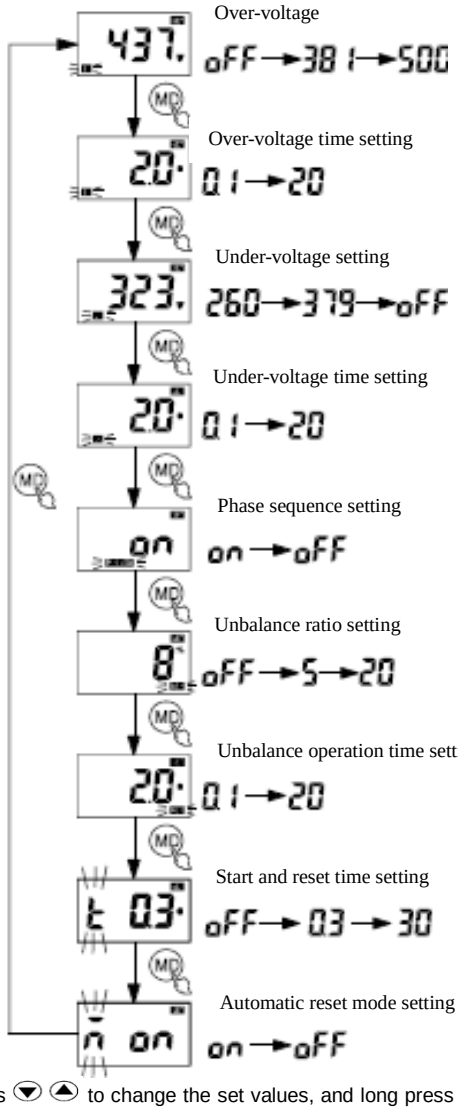
☐ Operating Instructions

Operation settings are made according to operating instructions for ZHRV2-S/M415relay. The setting process of ZHRV2-S/M240 relay is the same with that of ZHRV2-S/M, but the displayed set values are different.

Parameter setting

Press and hold down key MD for 3 seconds to get into parameter setting interface:





- Press ▼ ▲ to change the set values, and long press this key to accelerate the "minus" or "plus".
- When setting the parameters, the relay would automatically exit the menu if the key is not pressed for 60 consecutive seconds.

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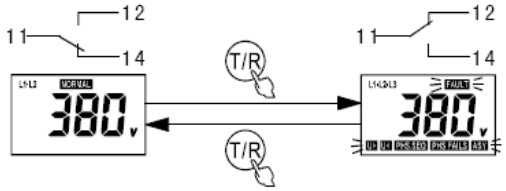
- After over-voltage protection, under-voltage protection or unbalance protection is turned off, the menu would not display operation time setting process.

LCD block code	Block code interpretation
L1-L2	L1-L2 phase, other phases switched through keys
NORMAL	Normal indication; this block code flashes in case of start and reset delay
FAULT	Fault indication; output relay NO disconnected
SET	Menu setting indication
U>	Over-voltage fault indication or over-voltage parameter setting indication
U<	Under-voltage fault indication or under-voltage parameter setting indication
PHS.SEQ	Phase sequence fault indication or phase sequence parameter setting indication
PHS.FAILS	Phase failure fault indication
ASY	Unbalance fault indication or unbalance parameter setting indication

Test

Press key T/R for 0.5 second to test relay operation:

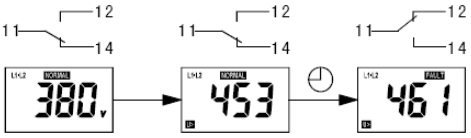


- This key would be valid only under normal conditions of power supply.
- Other keys are invalid when testing the functions.

Three-phase voltage query

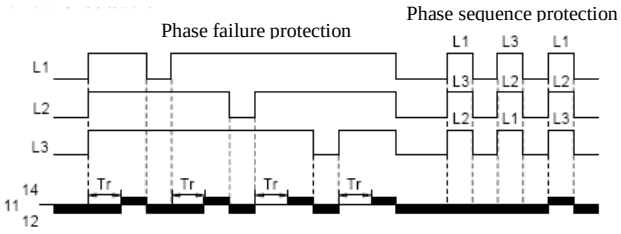
Press key MD to inquire three-phase voltage:

Example of over-voltage fault when U>the set voltage value of 450V

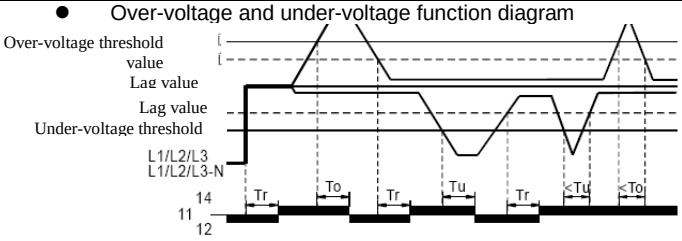


☐ Function Sequence Diagram (automatic reset mode)

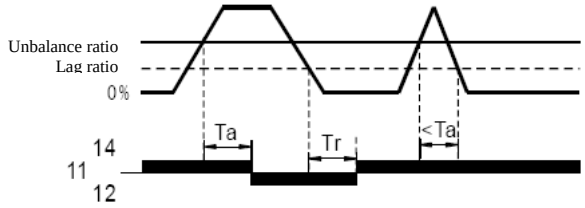
- Phase failure and sequence function diagram



- Over-voltage and under-voltage function diagram

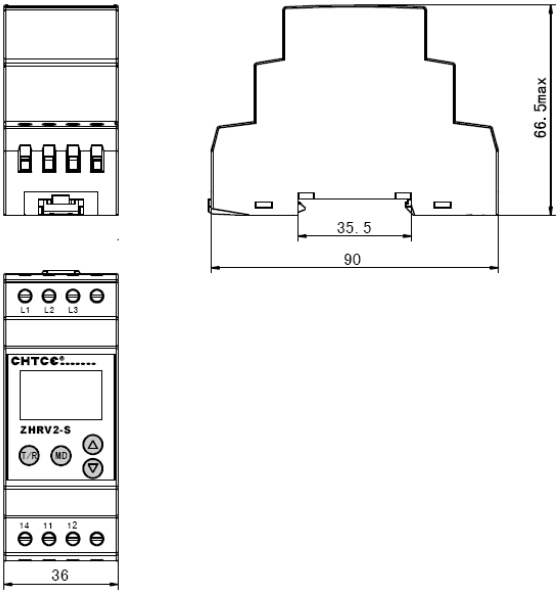


- Unbalance protection function diagram



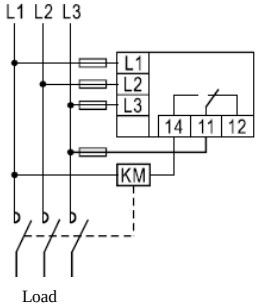
Tr: Start and reset delay time
To: Over-voltage delay time
Tu: Under-voltage delay time
Ta: Unbalance delay time

☐ Overall Dimensions



☐ Wiring Diagram

◆ Wiring diagram of a three-phase three-wire system



◆ Wiring diagram of a three-phase four-wire system